

REMARKS

The Official Action dated September 14, 2005 has been carefully considered. Accordingly, it is believed that the present Amendment places the application in condition for allowance. Reconsideration and an early allowance are requested.

By the present Amendment, claim 1 is amended to recite that the exothermic generating particles have an average particle diameter of at least about 100 microns, as set forth in the specification, for example at page 13, lines 12-15. Claims 3 and 4 are amended for matters of form and claim 9 is amended to correspond with claim 1 as amended. The dependency of claim 15 is corrected. Claims 23-29 are added. Support for claims 23 and 24 may be found in original claims 16 and 17. Support for claim 25 may be found in original claims 1, 3 and 4, while support for claim 26 may be found in original claim 1 and in the specification, for example at page 9, line 38-page 10, line 10. Support for claims 27 and 28 may be found in original claims 5 and 12, and support for claim 29 may be found in the specification at page 10, lines 5-10. It is believed that these changes do not involve any introduction of new matter, whereby entry is believed to be in order and is respectfully requested.

The Examiner required restriction under 35 U.S.C. §121, between claims 1-15, 17 and 20 drawn to an exothermic composition, claims 16, 19, 21 and 22 drawn to a process for generating heat, and claim 18 drawn to an apparatus for generating heat. Applicants affirm the provisional election of claims 1-15, 17 and 20. Claims 16-22 are cancelled. While claims 23 and 24 drawn to a process which involves generating heat are presented, these claims depend from claim 1 and therefore are believed to be within the scope of the invention of the elected claims. In the event that the Examiner withdraws these claims as directed to a non-elected invention, Applicants hereby request rejoinder of claims 23 and 24 once claim 1 from which they depend has been allowed. It is believed that this represents a complete response to the restriction requirement.

Claims 2-4, 17 and 20 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner asserted that claim 2 recited that the aqueous solution was already combined with the reaction mixture while claims 3 and 4 recited a reaction mixture

prior to mixing with an aqueous solution. Claims 17 and 20 were objected to based on dependency recitations.

This rejection is traversed and reconsideration is respectfully requested. Particularly, claims 17 and 20 are cancelled, and claim 3 now depends from claim 1, with claim 4 depending from claim 3. Thus, the reaction mixture defined by these claims does not require an aqueous solution. Further, these claims recite properties of the reaction mixture which are exhibited upon addition of an aqueous solution. It is therefore believed that these claims are definite, along with claim 2, in accordance with the requirements of 35 U.S.C. §112, second paragraph, whereby the rejection has been overcome. Reconsideration is respectfully requested.

Claims 1-15, 17 and 20 were rejected under 35 U.S.C. §103 as being unpatentable over the Ohta et al U.S. Patent No. 6,180,124. The Examiner asserted that Ohta et al teach a cosmetic composition comprising a polyhydric alcohol and a finely particulate metal oxide, wherein water is substantially not contained. The Examiner asserted that it would have been obvious to actually make compositions that contained additional adjuncts, and specifically to add a colorant or antifoaming agent, and to employ different concentrations of water soluble carriers and/or binders and to use the claimed exothermic generating particle size.

This rejection is traversed and reconsideration is respectfully requested, as the reaction mixtures defined by claims 1, 25 and 26 are nonobvious over and patentably distinguishable from the teachings of Ohta et al. More particularly, claims 1, 25 and 26 each recite an exothermic reaction mixture comprising exothermic generating particles, a volatile component, an anti-foaming agent and a buffer, which is suspended in a continuous phase water soluble coating comprising at least one water soluble coating ingredient comprising polyethylene glycol (PEG) having a molecular weight of from 2000 to 6000. As set forth in the present specification, for example at page 6, beginning at line 8, "continuous phase" is used to mean that there is one visible layer through the reaction mixture, which is distinct from a multi-phase reaction mixture where there is visibly distinct stratification of two or more layers. Additionally, Applicant has determined that the PEG having a molecular weight of from 2000 to 6000 provides a particularly advantageous reaction mixture product in that it prevents migration of the exothermic generating particles in the reaction mixture without interfering with the addition of the volatile component. Accordingly, an improved and controlled delivery of the volatile compound to a surrounding environment over an extended period of time is obtained upon addition of an aqueous solution to the reaction mixture.

In accordance with claim 1, the exothermic generating particles have an average particle diameter of at least 100 microns. Such particles are particularly advantageous for coating to provide a controlled release of the volatile compound upon addition of an aqueous solution to the reaction mixture. According to claim 25, when the reaction components are mixed with an aqueous solution, the resulting reaction mixture is operable to exhibit a specified temperature profile, namely to increase in temperature to a set temperature that is greater than about 35°C and less than about 75°C, within less than 20 minutes, and to remain within 15°C of the set temperature for at least about 45 minutes. Such a temperature profile provides controlled release of the volatile component over an extended period of time. Finally, according to claim 26, the anti-foaming agent comprises silicone anti-foam compound and silica particles. As set forth in the examples in the present specification, a reaction mixture containing such an anti-foaming agent is particularly advantageous in avoiding foam generation during the exothermic reaction, thereby improving the process of delivering a volatile component to a surrounding environment.

Applicant finds no teaching or suggestion by Ohta et al relating to reaction mixtures as recited in claims 1, 25 and 26. That is, Ohta et al disclose cosmetic compositions comprising a polyhydric alcohol and a finely particulate metal oxide, which may further contain an exothermic powder having an average particle diameter of 20 µm or smaller and substantially containing no particles having a particle diameter of 45µm or greater, to avoid irritation to the skin and a feeling of roughness. The exothermic powder is disclosed as raising the temperature of water by at least 2°C, preferably at least 5°C as the maximum reachable temperature when mixed with an equal weight of water at 25°C.

However, Applicant finds no teaching or suggestion by Ohta et al relating to an exothermic reaction mixture which contains, in combination with exothermic generating particles, a volatile component or an anti-foaming agent as required by claims 1, 25 and 26. That is, while Ohta et al teach the use of a polyhydric alcohol such as polyethylene glycol, Applicant finds no teaching by Ohta et al relating to the use of a polyhydric alcohol compound which acts as an anti-foaming agent. As set forth in the present specification, for example in the comparison summarized in Table 3 at page 19, polyethylene glycol is not an anti-foaming agent in the reaction mixture. Moreover, to the contrary, Ohta et al teach that the compositions may include foaming agents (column 4, line 59), thereby teaching away from the inclusion of an anti-foaming agent as required by the present claims. Particularly,

Applicant finds no teaching or suggestion by Ohta et al relating to an anti-foaming agent comprising a silicone anti-foaming compound and silica particles, as required by claim 26.

Moreover, Ohta et al teach away from the use of particles as recited in claim 1 having an average particle diameter of at least about 100 microns. Further, Applicant finds no teaching or suggestion by Ohta et al that any of the additional ingredients should be a volatile component as recited in the present claims, or relating to a reaction mixture as recited in claim 25, having a defined and controlled heating profile. As Ohta et al teach that their exothermic powder raises the temperature of an equal weight of water by 2 to a maximum of 5°C, Ohta et al actually teach away from a reaction mixture providing a heating profile as recited in claim 25. It is error to find obviousness where references diverge from and teach away from the invention at hand, *In re Fine*, 5 U.S.P.Q.2d at 1599.

To establish a prima facie case of obviousness, three basic criteria must be met. There must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings; second, there must be a reasonable expectation of success, and, finally, the prior art reference or references when combined must teach or suggest all of the claim limitations, MPEP §2142. Ohta et al do not teach or suggest all of the claim limitations of claim 1, claim 25 or claim 26. That is, Ohta et al provide no teaching or suggestion of reaction mixtures including an anti-foaming agent or a volatile component as required by claims 1, 25 and 26, of an exothermic generating particle diameter as recited in claim 1, of a reaction mixture having a temperature heating profile as recited in claim 25, or of a reaction mixture including an anti-foaming agent comprising silicone and silica as required by claim 26. Thus, Ohta et al do not establish a prima facie case of obviousness with respect to claims 1, 25 and 26, or any of the claims dependent thereon. While the Examiner has merely asserted that these missing elements would have been obvious, the teachings of Ohta et al do not support the Examiner's conclusion. It is therefore submitted that the rejection of the claims under 35 U.S.C. §103 based on Ohta et al has been overcome. Reconsideration is respectfully requested.

Claims 1-13, 17 and 20 were rejected under 35 U.S.C. §102(e) as anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over, the Needleman et al U.S. Patent No. 5,993,854. The Examiner asserted that Needleman et al teach an aroma releasing composition that can be in the form of granules, tablets or suspensions. The Examiner asserted that Applicant's claims are anticipated over formulations 3 and 4. The Examiner

further asserted that it would have been obvious to make compositions that meet the claimed reaction temperature parameters of claims 3 and 4.

This rejection is traversed and reconsideration is respectfully requested. The reaction mixtures defined by claims 1, 25 and 26 are discussed in detail above. Applicants find no teaching or suggestion by Needleman et al relating to reaction mixtures as recited therein. That is, Needleman et al disclose an exothermic effervescent composition for improved fragrance dispersion. The composition comprises an effervescent agent, an exothermic agent and a volatile agent, with the effervescent agent and the exothermic agent provided in a ratio sufficient to release the volatile agent when the composition is placed in water. Needleman et al exemplify tablets formed from the aforementioned components and one or more binders (columns 4-5). Needleman et al also broadly disclose that powders, granules or a two-part suspension are possible product forms (column 2).

However, Applicant finds no teaching or suggestion by Needleman et al relating to a reaction mixture suspended in a continuous phase water soluble coating comprising at least one water soluble coating ingredient comprising PEG having a molecular weight from 2000 to 6000. As noted in the present specification, continuous phase refers to one visible layer through the reaction mixture, which is distinct from a multi-phase reaction mixture where there is visibly distinct stratification of two or more layers. In contrast, Needleman et al disclose tablets, and exemplify tablets containing only 0.5 weight percent PEG-150. Moreover, Needleman et al's broad reference to two-part suspensions is clearly distinguishable from and teaches away from the continuous phase required by the present claims.

Further, Applicant finds no teaching or suggestion by Needleman et al relating to a reaction mixture containing exothermic generating particles having an average particle diameter of at least about 100 microns, as required by claim 1, or the combination of such particles with PEG having a molecular weight of from 2000 to 6000, particularly in order to avoid migration of such particles as required by claim 1, or relating to a reaction mixture having a temperature profile as recited in claim 25, or relating to the improvement in controlled delivery of a volatile component to a surrounding environment provided by such a temperature profile.

Further, Applicant find no teaching or suggestion by Needleman et al for including an anti-foaming agent in their compositions. While the Examiner has asserted that polyethylene glycol is a polyhydric alcohol and therefore an anti-foaming agent, the comparisons set forth

in the present specification at page 19 demonstrate that polyethylene glycol is not an anti-foaming agent as claimed. In fact, as Needleman et al employ an effervescent agent in their compositions, one of ordinary skill in the art would assume that Needleman et al teach away from the use of an anti-foaming agent as such a component may adversely influence the visible recognition of the effervescent action.

Anticipation under 35 U.S.C. §102 requires that each and every element as set forth in the claims is found, either expressly or inherently described, in a single prior art reference, *In re Robertson*, 49 U.S.P.Q. 2d 1949, 1950 (Fed. Cir. 1999). In view of the failure of Needleman et al to teach a reaction mixture comprising the components as recited in claims 1, 25 and 26, or a reaction mixture adapted to provide a heating profile as recited in claim 25, Needleman et al do not disclose, either expressly or inherently, each element set forth in the present claims. Thus, Needleman et al do not anticipate claims 1, 25 of 26, or any of the claims dependent thereon, under 35 U.S.C. §102.

Moreover, in order to render a claimed invention obvious under 35 U.S.C. §103, the prior art must enable one skilled in the art to make and use the claimed invention, *Motorola, Inc. v. InterDigital Tech. Corp.*, 43 U.S.P.Q.2d 1481, 1489 (Fed. Circ. 1997). Applicant finds no teaching or suggestion by Needleman et al for controlled release of a volatile component into a surrounding environment, or for modifying the teachings therein to arrive at a reaction mixture comprising the components recited in any of claims 1, 25 or 26, to provide such an effect. Thus, Needleman et al do not enable one skilled in the art to make and use the presently claimed reaction mixtures, and therefore do not render the presently claimed invention obvious, *Motorola, Inc. v. InterDigital Tech. Corp.*, *supra*.

It is therefore submitted that the reaction mixtures defined by the present claims are neither anticipated by nor rendered obvious over Needleman et al, whereby the rejections under 35 U.S.C. §§102 and 103 based on Needleman et al have been overcome. Reconsideration is respectfully requested.

Claims 14 and 15 were rejected under 35 U.S.C. §103(a) as being unpatentable over Needleman et al, optionally in view of Ohta et al. The Examiner asserted that it would have been obvious to add coloring agents as an additional component, referring to column 3, lines 62-67 which indicate that the Needleman et al composition may further comprise arbitrary ingredients. The Examiner alternatively relied on Ohta et al as disclosing the optional addition of color to cosmetic compositions.

This rejection is traversed and reconsideration is respectfully requested. Particularly, claims 14 and 15 depend directly or indirectly from claim 1 and therefore include the limitations of the exothermic reaction mixture of claim 1. The deficiencies of Needleman et al and Ohta et al with respect to the exothermic reaction mixture of claim 1 have been discussed in detail above. These deficiencies apply equally well to the reaction mixtures defined by claims 14 and 15, and they are not resolved by either Needleman et al's reference to the inclusion of arbitrary ingredients in their compositions or any teachings by Ohta et al relating to colorants for cosmetic compositions. Particularly, Applicant finds no teaching or suggestion in the combination of Needleman et al and Ohta et al relating to an exothermic reaction mixture comprising the combination of exothermic generating particles having an average particle diameter of at least about 100 microns, a volatile component, an anti-foaming agent and a buffer, or such a reaction mixture suspended in a continuous phase water soluble coating comprising PEG having a molecular weight of from 2000 to 6000.

As noted previously, to establish a prima facie case of obviousness, there must be some suggestion or motivation to modify a reference or to combine reference teachings, there must be a reasonable expectation of success, and finally, the prior art reference or references when combined must teach or suggest all of the claim limitations, MPEP §2142. The combination of Needleman et al and Ohta et al do not teach or suggest all of the present claim limitations, or the improvements provided thereby in a reaction mixture for delivering a volatile component to a surrounding environment in a controlled manner. In fact, Applicant finds no motivation or suggestion for combining the fragrance dispersing compositions of Needleman et al with the cosmetic compositions of Ohta et al. It is therefore submitted that the reaction mixture as defined by claims 14 and 15 are nonobvious over and patentably distinguishable from Needleman et al in view of Ohta et al, whereby the rejection of these claims under 35 U.S.C. §103 has been overcome. Reconsideration is respectfully requested.

Claims 1-15, 17 and 19 were rejected under 35 U.S.C. §103(a) as being obvious over WO 99/48469 (WO '469), optionally in view of Ohta et al. The Examiner asserted that WO '469 teaches compositions for aroma delivery comprising an aromatic ingredient, an exothermic ingredient, and a pH adjusting agent, with optional adjuncts such as carriers, binder and coloring agents. The Examiner referred to Example V, and asserted that it would have been obvious to use the broad disclosure of the references' motivation to actually make a composition in the form of a suspension, to make compositions that meet the claimed reaction temperature parameters, and to use the claimed exothermic generating particle size

range. The Examiner relied on Ohta et al as disclosing that it is well know to use higher molecular weight PEG, such as PEG 2000, as a carrier/binder material for exothermic cosmetic compositions.

This rejection is traversed and reconsideration is respectfully requested. The reaction mixtures defined by claims 1, 25 and 26 are discussed in detail above. Applicant finds no teaching or suggestion by WO '469 relating to reaction mixtures as recited therein. More specifically, WO '469 discloses compositions for aroma delivery which comprise an aromatic ingredient, an exothermic ingredient and a pH adjusting agent, wherein the aroma is delivered when water is added to the composition. However, Applicant finds no teaching or suggestion in this reference relating to an exothermic reaction mixture which is suspended in a continuous phase water soluble coating comprising at least one water soluble coating ingredient comprising PEG having a molecular weight from 2000 to 6000. To the contrary, WO '469 discloses that their product may be in powder, granule or tablet form, with no mention of a PEG suspension, particularly a suspension of the reaction mixture in PEG having a molecular weight of from 2000 to 6000. The product of WO '469 is similar to that discussed in the present specification and as exemplified as composition A in Fig 1. The absence of the PEG suspension causes the exothermic generating particles to exhibit a significantly different temperature profile as compared with exothermic generating particles in the reaction mixture of the present claims which provides a more controlled temperature profile as demonstrated by the remaining compositions in Fig. 1.

Further, while Ohta et al disclose the use of PEG in cosmetic compositions, Ohta et al provide no teaching or suggestion for resolving these deficiencies of WO '469. Moreover, the Examiner has not indicated how the cosmetic compositions of Ohta et al are relevant to the compositions for aroma delivery defined by WO '469. Only in hindsight of the present specification would it be obvious to employ a cosmetic composition component as taught by Ohta et al in a composition for aroma delivery according to WO '469.

Moreover, Applicant finds no teaching or suggestion in WO '469 relating to a reaction mixture which includes an anti-foaming agent, particularly in combination with exothermic generating particles, a volatile component and a buffer, or relating to such a suspension including an anti-foaming agent in PEG. Thus, the teachings of WO '469 are further deficient and are not resolved by Ohta et al which, as discussed in detail above, provides no teaching or suggestion relating to an anti-foaming agent but, to the contrary, suggests the use of a foaming agent.

The Examiner refers to Example V of WO '469. However, Example V relates to a tablet composition produced with sugar granules and provides no teaching or suggestion relating to a PEG suspension or relating to an anti-foaming agent as required by claims 1, 25 and 26. Further, Applicant finds no teaching or suggestion by WO '469 to include any coating to provide a controlled release of aromatic ingredient, and particularly to provide a temperature profile as recited in claim 25. The Examiner has asserted that it would be obvious to provide such a profile; however, WO '469 provides no teaching or suggestion for providing a coating or suspension or for use of a coating to provide a controlled temperature profile which, in turn, provides controlled release of the volatile component.

In view of these deficiencies in the teachings of WO '469, and the deficiencies of Ohta et al discussed in detail above, these references in combination do not enable one skilled in the art to make and use the presently claimed reaction mixtures, and therefore do not render the presently claimed invention obvious, *Motorola, Inc. v. InterDigital Tech. Corp.*, *supra*. It is therefore submitted that the reaction mixtures defined by the present claims are nonobvious over and patentably distinguishable from WO '469 in combination with Ohta et al, whereby the rejection under 35 U.S.C. §103 has been overcome. Reconsideration is respectfully requested.

Claims 1-15, 17 and 20 were rejected under 35 U.S.C. §103(a) as obvious over the Bell et al U.S. Patent No. 5,935,486, optionally in view of Ohta et al. The Examiner asserted that Bell et al teach a portable heat source that may be activated by addition of water or an aqueous solution and consists of an acidic anhydride or salt together with a basic anhydride or salt, and the Examiner again relied on Ohta et al as teaching PEG in cosmetic compositions.

This rejection is traversed and reconsideration is respectfully requested. The reaction mixtures defined by claims 1, 25 and 26 are discussed in detail above. Applicant finds no teaching or suggestion by Bell et al relating to reaction mixtures as recited therein. More specifically, Bell et al disclose a portable heat source that may be used to warm food, beverage or other supplies. However, Applicant finds no teaching or suggestion by Bell et al of any volatile component included therein or any anti-foaming agent included therein, as required by claims 1, 25 and 26. Thus, Bell et al fail to teach at least two elements of the reaction mixture of the present claims.

Moreover, Applicant finds no teaching or suggestion by Bell et al that a reaction mixture comprising exothermic generating particles should be suspended in a continuous

phase water soluble coating comprising at least one water soluble coating ingredient comprising PEG having a molecular weight from 2000 to 6000. The Examiner refers to Examples 2 and 3 of Bell et al employing Brij 30. However, the Examiner's attention is directed to the product data sheet for Brij 30 submitted herewith which indicates that Brij 30 is water insoluble. Thus, the examples relied upon by the Examiner do not show a reaction mixture in a suspension of a water soluble coating as required by claims 1, 25 and 26.

While Ohta et al disclose cosmetic compositions containing polyethylene glycol, the Examiner has not indicated how or why one of ordinary skill in the art would be motivated to combine the cosmetic composition teachings of Ohta et al with the teachings of Bell et al which are directed to a portable heat source for warming food, beverage or other supplies. Only in hindsight of Applicant's disclosure would one of ordinary skill in the art be motivated to combine the teachings of Ohta et al with Bell et al.

Moreover, Applicants find no teaching or suggestion by Bell et al or Ohta et al for controlled release of a volatile component into a surrounding environment, or for modifying the teachings therein to arrive at a reaction mixture comprising a combination of exothermic generating particles, a volatile component, an anti-foaming agent and a buffer as recited in claims 25 and 26, to provide such an effect. Thus, Bell et al in combination with Ohta et al do not enable one skilled in the art to make and use the presently claimed reaction mixtures, and therefore do not render the presently claimed invention obvious, *Motorola, Inc. v. InterDigital Tech. Corp., supra*.

It is therefore submitted that the reaction mixtures defined by the present claims are nonobvious over Bell et al and Ohta et al, whereby the rejection under 35 U.S.C. §103 has been overcome. Reconsideration is respectfully requested.

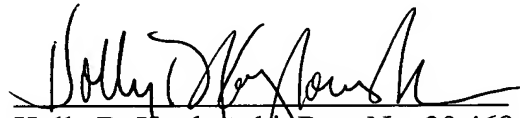
Finally, claims 1-15, 17 and 20 were rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 and 19 of copending Application No. 10/341,048, claims 1-12, 19 and 20 of copending Application No. 10/340,993 and claims 1-15, 17 and 20 of copending Application No. 10/341,196. The Examiner stated that although the conflicting claims are not identical, they are not patentably distinct from each other.

These obviousness-type double patenting rejections are traversed. However, to expedite prosecution of the present application, the Assignee of the present application is executing a Terminal Disclaimer disclaiming the terminal portion of any patent issued on the present application which would extend beyond the expiration date of the earliest to expire of

any patents granted on the copending cited applications. The executed Terminal Disclaimer will be submitted once it received by the undersigned. The filing of a Terminal Disclaimer simply serves the statutory function of removing the rejection of double patenting and raises neither presumption nor estoppel on the merits of the rejection, *Quad Environmental Technologies v. Union Sanitary District*, 20 U.S.P.Q.2d 1392 (Fed. Cir. 1991). It is therefore believed that the obviousness-type double patenting rejections are overcome upon the filing of the Terminal Disclaimer. Reconsideration is respectfully requested.

It is believed that the above represents a complete response to the rejections set forth in the Official Action, and places the present application in condition for allowance. Reconsideration and an early allowance are requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Holly D. Kozlowski", is written over a horizontal line.

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Brij™ series

Polyoxyethylene (POE) fatty ethers

The Brij™ series of surfactants are polyoxyethylene fatty ethers derived from lauryl, cetyl, stearyl and oleyl alcohols. Brij surfactants are stable to acids and alkalis beyond the pH range which ester type emulsifiers can withstand. Hence, the Brij series are useful for emulsifying fats and oils in highly acidic or alkaline media. The series contains both hydrophilic and lipophilic products. Depending on the HLB, Brij surfactants can be used to form either oil-in-water (O/W) emulsions or water-in-oil (W/O) emulsions, solubilize oils and improve wetting. These products are widely used in personal care, fiber finish, HI&I cleaning, crop protection, paints & coatings, adhesives and other industrial applications.

Table 1: Brij series products

Product	Chemical description	HLB	Color and form at 25°C ¹	Viscosity at 25°C or pour point ²
Brij 30	POE (4) lauryl ether	9.7	Colorless liquid	30 cps
Brij 35	POE (23) lauryl ether	16.9	White solid	33°C
Brij 35 liquid gel	POE (23) lauryl ether	16.9	Liquid	
Brij 52	POE (2) cetyl ether	5.3	White solid	33°C
Brij 56	POE (10) cetyl ether	12.9	White solid	31°C
Brij 58	POE (20) cetyl ether	15.7	White solid	38°C
Brij 72	POE (2) stearyl ether	4.9	White solid	43°C
Brij 76	POE (10) stearyl ether	12.4	White solid	38°C
Brij 78	POE (20) stearyl ether	15.3	White solid	38°C
Brij 93 Veg	POE (2) oleyl ether	4.9	Light yellow liquid	30 cps
Brij 97	POE (10) oleyl ether	12.4	Light yellow liquid	100 cps
Brij 98	POE (20) oleyl ether	15.3	Cream solid	30°C
Brij 721	POE (21) stearyl ether	15.5	White waxy solid	

(1) Color and Form at 25°C determined visually. An approximation of color intensity is indicated by comparison with Gardner standards as follows:

Colorless-light yellow	< 1-2 Gardner units
Yellow	2-7 Gardner units
Amber	7-10 Gardner units

(2) Viscosity: ASTM-D-445-53T method. Pour point: ASTM-D-97-47 method.

Table 2: Solubilities of Brij series

Product	Water	Alcohol	Cottonseed oil	Mineral oil	Propylene glycol
Brij 30	I	S	D	D	S
Brij 35	S	S	I	I	S
Brij 35 liquid gel	S	S	I	I	S
Brij 52	I	S	D	H	D
Brij 56	H	H	D	I	D
Brij 58	S	S	D	I	I
Brij 72	I	S	D	I	I
Brij 76	D	S	D	D	D
Brij 78	D	S	D	I	I
Brij 93 Veg	I	S	S	S	S
Brij 97	S	S	D	H	S
Brij 98	S	S	D	I	D
Brij 721	D	I	I	I	I

Solubility at 25°C, 1-10%

KEY

- S = Soluble, clear
- H = Soluble with haze, hazy, turbid
- D = Insoluble, self-dispersing or self-emulsifying;
on standing, separates into distinct phases
- I = Insoluble, gross separation into distinct phases
- G = Insoluble, forms gel

Formulation example

Mold release

Part A	Silicone oil	35
	Brij 72/76 (1/1)	5
Part B	Water	60

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